

Claims

1. An arrangement in a calender for guiding a web, advantageously a paper web (W) or an equivalent fibrous web, in the calender from one nip (N) to another nip
5 and for doctoring a calender roll (1, 2), **characterized** in that a doctor (4) is supported by a guide means (5) of the web (W), to which guide means (5) support means (42, 43, 44) of the doctor (4) have been attached and which includes at least one stationary and outwards curved, i.e. convex, web guide surface (51) which receives the web from one nip (N) of the calender and over and on which
10 the web is guided towards a subsequent nip of the calender, so that between the guide surface and the web there is a medium layer which carries the web and which is advantageously an air film and/or a gas layer.
2. An arrangement as claimed in claim 1, **characterized** in that the guide means
15 (5) includes a first part (51), which serves as the at least partly convex web guide surface, that the support means, i.e. a support arm, (42, 43, 44) of a doctor blade (41) are attached to a second part (52) of the guide means, which second part is in the guide means on the side opposite to that of the first part, and that the air film and/or the gas layer cover(s) substantially the entire area of the first part between
20 the guide surface and the web.
3. An arrangement as claimed in claim 1 and/or 2, **characterized** in that the guide surface (51) receives the web from one nip (N) and guides the web in its running direction to the next nip.
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4. An arrangement as claimed in claim 2 and/or 3, **characterized** in that the guide means (5) is formed of an at least partly convex guide plate, an outer surface of which forms the guide surface (51), and of a second part (52), advantageously a plate, of the guide means between edges or edge zones (53) of
30 the guide plate, which edges or edge zones extend in the axial direction of the

calender roll (1, 2), i.e. in the cross direction, which second part serves as a support or stiffening element of the guide means.

- 5 5. An arrangement as claimed in any one of claims 2 to 4, **characterized** in that the radius of curvature of the guide surface (51) is selectably variable or invariable.
- 10 6. An arrangement as claimed in any one of claims 2 to 4, **characterized** in that the first part of the guide means (5) serving as the guide surface (51) is formed of a cylindrical surface.
- 15 7. An arrangement as claimed in any one of claims 4 to 6, **characterized** in that the support means (42, 43, 44) of the doctor blade (41) have been attached to the support or stiffening element (52) of the guide means (5) on the side of the calender roll (2), so that the doctor blade is directed, while supported by the support means, towards the calender roll.
- 20 8. An arrangement as claimed in claim 2 and/or 3, **characterized** in that the first part of the guide means (5) serving as the guide surface (51) is formed by a cylindrical surface of a non-rotating web guide or take-out roll, which cylindrical surface faces away from the calender roll (2).
- 25 9. An arrangement as claimed in claim 8, **characterized** in that the support means (42, 43, 44) of the doctor blade (41) have been attached so that they project from the guide or take-out roll of the web (W) towards the calender roll (2).
- 30 10. An arrangement as claimed in any one of claims 2 to 9, **characterized** in that the flow of air and/or gas which produces an air and/or gas film to the space between the web (W) and the guide surface (51) is brought about by the movement of the web from the nip (N) towards the guide means.

11. An arrangement as claimed in any one of claims 2 to 10, **characterized** in that air flows between and from between the web (W) and the guide surface (51) through air and/or gas flow openings or passages (6) extending through the convex first part of the guide means (5).

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12. An arrangement as claimed in any one of claims 2 to 10, **characterized** in that in order to prevent formation of a stagnated or decelerated air and/or gas layer, part of the air and/or gas film, advantageously a boundary layer near the guide surface (51) of the air and/or gas film, can be passed from between the web (W) and the first part (51) of the guide means (5) through the air flow openings or passages (6), which extend through the convex first part of the guide means (5), to the inside of the guide means.

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13. An arrangement as claimed in any one of claims 10 to 12, **characterized** in that the air and/or gas flow openings (6), which are open to the guide surface, are bounded by edges in the shape of a closed periphery, which edges are advantageously polygonal, circular, elliptical or the like.

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14. An arrangement as claimed in any one of claims 10 to 12, **characterized** in that the air and/or gas flow passages (6) extend substantially in the cross direction across the guide surface (51), and that the edges bounding each air and/or gas flow passage, which is open to the guide surface (51), are substantially parallel and spaced from one another.

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15. An arrangement as claimed in any one of claims 1 to 14, **characterized** in that the guide means (5) of the arrangement has been selected from a group including: a straight tubular roll; a sectional roll, a bowed one-part take-out or spreader roll; a bowed multiple-part take-out or spreader roll.

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16. An arrangement as claimed in any one of claims 1 to 15, **characterized** in that the guide means (5) of the arrangement, which has a guide surface (51) for

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the web (W), is formed of a doctor beam of the doctor (4), to which doctor beam the support arm (42, 43, 44) of the doctor blade (41) has been attached.

17. An arrangement as claimed in any one of claims 1 to 16, **characterized** in
5 that the convex guide surface (51) has at least two outwards curved guide surface parts (511, 512) placed one after the other.

18. An arrangement as claimed in any one of claims 1 to 17, **characterized** by at
least one cross-direction air guide member (54) which, as attached to the
10 arrangement, is situated in the running direction of the web (W) before the web guide means (5) and which guides air and/or gas to the space between the web and the guide surface (51).